

MERZ (C.H.)

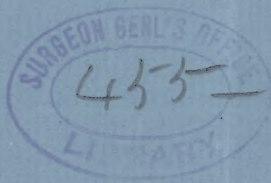
A POSSIBLE SOURCE
OF DISEASE.

BY

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A Possible Source of Disease.*

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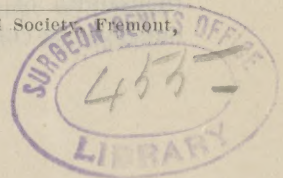
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While feeling the deepest reverence for a custom that has become sacred through time and usage, the writer, after much careful thought on this same subject, was rejoiced to see the full fruition of an innovation, observed in the Scovill Avenue M. E. Church, in Cleveland, Ohio, a few weeks ago, that of administering the wine of the Holy Communion in small individual glasses. This was the out-come of careful deliberation, and with the full consent of the pastor and laymen, and for obvious sanitary reasons.

At this day, scientific investigation has proven beyond the possibility of a doubt, that nearly, if not all, of the diseases human flesh is heir to, are due to infection by germs. The time is approaching when it will be possible for us to say with assurance, that infectious diseases are parasitic diseases, and the proof of our assertion will lie in the fact, that bacteria are found on the surface of the human body, and in the interior organs in communication with the exterior. We are forced to account for their presence by two hypotheses; one the spontaneous production of these organisms in the interior of the tissues; the other, their introduction through the membranes

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from without. The cutaneous surfaces are penetrated with difficulty by germs, but upon the mucous membrane, there is little if any delay, in their introduction into the system. Under what other circumstances than that sanctioned, could one of us be induced to drink from a cup that has been brought into contact with several hundred lips, without any pretense of cleansing? The cups used in the communion service are ordinarily of metal, and present edges that are more or less roughened, that form convenient hiding places for germs of disease. Think a moment of the importance of this question that now demands the attention of every physician, sanitarian, and scientific man,—the role of bacteria in infectious diseases. The unimpeachable nature of experimental proof in this line,—when investigation is carefully conducted—is at once made apparent. The germs once implanted, warmth and moisture are the most favorable adjuvants for their rapid development, in fact are essential. There is no doubt that the germs pass into the blood after being introduced by food and drink into the alimentary canal. The multiplication of these germs under favorable circumstances is rapid,—almost beyond comprehension. Figures can convey but a vague idea of the rapidity of their growth. "Let us suppose" says Cohn, "that a bacterium divides into two in the space of an hour. Then into four at the end of the second hour, then in eight at the end at the third hour; in 24 hours the number will amount to more than sixteen millions and a half (16,777,220). At the end of two days, this bacterium will have multiplied to the incredible number of 281,500,000,000. At the end of about a week, a number that can only be represented by 51 figures." Now in order to render these numbers more comprehensible, let us seek the volume and the weight which may result from the multiplication of a bacterium. The individuals of the most common species of rod-bacteria present the form of a short cylinder, having a diameter of a thousandth of a millimeter in length. Let us represent to ourselves a cubic measure of a millimeter. This measure

would contain, according to what we have just said, 663,000,000 of rod-bacteria, without leaving any empty space. Now at the end of 24 hours the bacteria coming from a single bacterium would occupy the fortieth part of a cubic millimeter; but, at the end of the following day, they would fill a space equal to 542.570 of these cubes, or about a half a litre. Let us admit that the space occupied by the sea is equal to two-thirds of the terrestrial surface, and that its mean depth is a mile, the capacity of the ocean will be 928,000,000 of cubic miles. The multiplication being continued under the same conditions, the bacteria issuing from a single germ would fill the ocean in five days.

Germ poisons remain active for a long time after escape from the body. The fact that in some cases the germs are absorbed only through abraded membranes and in others through the unbroken membrane, may be explained by the varying diameters of the particles.

Immunity from sources of infection even in the matter of Holy Communion can be attained only by scrupulous care and cleanliness. Surely, it is not too sanguine a prediction that the next few years may see the custom which has so long prevailed, and about which so many sacred thoughts cluster, give way to a safer, sanitary plan.

The persistence of the virulence of bacilla has been clearly shown by Klebs and others. A culture in bouillon kept six months from the light in a closed tube, gave strong healthy colonies of germs, when inoculated into living animals. Sevestre, in "Etudes de Clinique Infantile," cites cases tending to prove the extraordinary vitality of the germs of diphtheria. Lapses of two and even four years are not unusual periods for infection from dangerous sources. The subject is one of vital importance from the point of view of prophylaxis. Direct transmission from lip to lip, from sputum, from the hands, clothing, and instruments, has been observed again and again.

We are striving to secure acts of legislature that will limit the spread of the seeds of disease and death. Physicians

everywhere, for years past, have petitioned the Legislature and urged by every possible means in their power, the passage of laws that would protect us in a measure, from contagious diseases. Yet this one source of contagion, the indiscriminate use of the communion cup, has largely escaped notice, and is sanctioned as a custom, because supposed to have been so established by Holy Writ. But, Biblical authority does not specify the manner in which the custom is to be observed. We do not read that Christ's disciples partook from the same cup, at the first communion. In Luke 22, 17th, is this: "And he took the cup and gave thanks, and said, 'Take this and divide it among yourselves.'" There is nothing to justify the inference that all drank from the one cup; rather that each disciple had a smaller cup from which he partook of his portion.

In many of the more contagious diseases, the main changes are found upon the mucous membranes of the lips, tongue and mouth. This is especially true of one disease particularly virulent and disgusting in its forms. Food that has become lodged in the crevices of the teeth, aided by moisture and warmth, create a perfect hot-bed for microbes, if indeed such matter itself is not directly poisonous.

There is a well known list of diseases that are contagious. Healthy persons receive into their systems the germs emanating from those ill with small-pox, scarlet fever, diphtheria, measles, etc., and become sick themselves from the same disease. Persons ill with these diseases reproduce in their bodies the specific germs that caused their sickness, so that exposure to the presence of such is sufficient to reproduce the disease. Convalescent children and adults are sent to church, school or Sunday-school, while they are active centers of contagion. Physicians through carelessness often conceal the fact, and are sometimes *particeps-criminis* in the results of such concealment. It is in this manner that maladies are allowed to work their fatal effects upon communities. The great trouble is that there seems to

be a universal opinion, that so long as any one disease does not assume an overwhelmingly epidemic form, there is no excuse for attempting to limit its spread. Apathetic inaction speaks louder than words, and the responsible parties must either acknowledge it, or admit being negligent of the safety of the lives entrusted to them. Upon the same ground—that of infection—promiscuous and indiscriminate kissing is to be condemned. The prevalent habit of kissing children is to be seriously deprecated, as it cannot be questioned that much disease is transmitted in that way. The skin and mucous membranes of infants are very delicate, and exceedingly susceptible to poisons, that may unconsciously be carried upon the lips of another.

Judge Arnold, of Philadelphia, has decided that it is not necessary for one to kiss a much-handled and perhaps germ-bedecked Bible, when taking oath in his court. He states that it is a relic of idolatry that ought to be abolished; that it was established by the church to show humiliation of the people, before the judges who were clerics; and that the custom has been abolished in England. It is a relic of the age in which, trial by fire took the place of trial by Jury, when a man's innocence or guilt depended upon his physical capacity to endure pain and torture. But its worse feature is the dirt and disease which is imparted to the book, by the constant handling it receives by dirty witnesses. The Duke of Fife, when he took his oath at Stratford, had the testament enveloped in clean white paper.

Medical works are replete with instances of infection from mouth and lips. The man who sips from the communion cup may have a malignant sore-throat; be but just convalescent from scarlet-fever, or have some dread infectious disease in its incipency. Can it be safe for the communicant succeeding him to press his lips upon the spot where that one's have pressed? The pertinent question is, has the Church or the individual the right to cause the people to incur this risk, at every communion? How the danger—not an imaginary one—

can be best avoided, I do not pretend to even suggest, realizing that the solution lies entirely with the pastor and his congregation. Various plans have been proposed, and in several instances at least tried, without arousing any opposition. After all, it is not so much the form of our worship but "the spirit that giveth life."

I can give in one word the secret of this question, and that of the whole of hygiene,—cleanliness. If cleanliness be next to Godliness, then certainly is their cause for careful consideration of this particular subject.

In many ways, the Christian of to-day is a Sanitarian. He recognizes the sacredness of the human body,—God's highest work. He recognizes the value of human life; that it is a sacred thing, and that he must not commit murder. He is his brother's keeper, and is under sacred obligations to consider his welfare. His rule is the Golden Rule. He is a sanitarian in a more direct way. He is building hospitals and charitable institutions. He is combating crime and degeneracy, and waging war on the diseases that flourish among the poorer classes. He is a sanitarian in that he recognizes the dependence of body and soul, and that he directly benefits the latter, when he betters the condition of the former. He is emphatically a sanitarian in that he realizes that public morals and public sanitation are so closely related, have so definite an influence upon the purity of life, that whatever teaches the people cleanliness and the principles of public health, directly advances the cause of the Christian Religion. Yet in view of all this, in spite of the position he takes upon other subjects, he sanctions this custom of administering the Communion wine, either from superstition or a wilful blindness to the perils arising from it.

I do not believe that anyone was ever made a sanitarian through fear, but rather by conviction, therefore in pointing out the possible dangers to health and life that beyond a doubt exist in this church custom as now observed, I do not do so with the idea of alarming anyone, but with the intention of familiarizing everyone with the facts as they really exist.

